

**ABSTRACT OF THE INVENTION**

This invention relates generally to a novel serine/threonine protein kinase, specifically to hormonally up-regulated, neu-tumor-associated kinase (HUNK); and to the nucleotide sequence encoding it. The kinase is temporally expressed during postnatal mammary development in a spatially heterogeneous manner in certain subsets of cells, and overexpressed in a subset of primary breast cancers. The invention further relates to an analysis of a correlation between carcinogenesis and postnatal development, particularly mammary development, especially associated with parity; to methods of using the kinase, or gene encoding it, as markers, prognostic tools, screening tools and therapies, *in vitro* and *in vivo*, that are based upon that correlation; and to the regulation of pregnancy-induced changes in the mammary tissue that occur in response to estrogen and progesterone.